中国狭顶蚱属的研究及一新种记述 (直翅目: 蚱总科)

郑哲民1, 欧晓红2

(1. 陕西师范大学动物研究所, 西安 710062; 2. 西南林业大学云南省森林灾害预警与控制重点实验室, 昆明 650224)

摘要:记述中国狭顶蚱属 11 种,包括采自云南的 1 新种,即短背狭顶蚱 Systolederus brachynotus sp. nov. 附有中国种类的检索表、分布和文献引证。新种模式标本保存于陕西师范大学动物研究所标本室及西南林业大学博物馆。

关键词:直翅目; 蚱总科; 狭顶蚱属; 新种; 中国

中图分类号: Q969 文献标识码: A 文章编号: 0454-6296(2010)07-0802-07

A review of the genus Systolederus Bolivar (Orthoptera: Tetrigoidea) from China, with descriptions of a new species

ZHENG Zhe-Min¹, OU Xiao-Hong² (1. Institute of Zoology, Shaanxi Normal University, Xi' an 710062, China; 2. Key Laboratory of Forest Disaster Warning and Control in Yunnan Province, Southwest Forestry University, Kunming 650224, China)

Abstract: The genus *Systolederus* Bolivar from China is reviewed, with 11 species recorded, including a new species, *Systolederus brachynotus* sp. nov., from Yunnan. A key to species of *Systolederus* from China is provided. Type specimens of the new species are kept in Institute of Zoology, Shaanxi Normal University and the Museum of Southwest Forestry University.

Key words: Orthoptera; Tetrigoidea; Systolederus; new species; China

狭顶蚱属 Systolederus 为 Bolivar 1887 年建立, 属模式种为分布于菲律宾的 S. haani Bolivar, 1887, 同时报道了分布于西里伯斯的 S. ophthalmicus Bolivar, 1887, 并将 Tettix angusticeps Stål, 1877 转入狭顶蚱属中。Bolivar (1892) 报道了 分布于印度及斯里兰卡的 S. greeni Bolivar, 1892; Brunner von Wattewyl (1893) 报道了分布于缅甸的 S. cinerus Brunner von Wattewyl 1893; Hancock (1907) 报道了分布于马来亚的 S. parvus Hancock, 1907; Hancock (1908) 报道了分布于新加坡的 S. ridleyi Hancock, 1908; Bolivar (1909) 报道了分布 于菲律宾和印度尼西亚的 S. carli Bolivar, 1909; Hancock (1910) 报道了分布于斯里兰卡的 S. anomatus Hancock, 1910; Kirby (1910) 将 Tettix uncinatus Stall, 1877 及 Tettix femoralis Walker, 1871 转入狭顶蚱属中; Gunther (1936) 报道了分布于菲 律宾的 S. affinis Gunther, 1936; Gunther (1937) 报 道了分布于爪哇及苏门答腊的 S. injucundus

Gunther, 1937, S. carli celebensis Gunther, 1937 及 S. frustorferi Gunther, 1937; Gunther (1939) 报道了 分布于菲律宾的 S. boettcheri Gunther, 1939、分布于 印度的 S. gravellyi Gunther, 1939、分布于爪哇和苏 门答腊的 S. waterstradti Gunther, 1939 及分布于泰 国南部的 S. siamesicus Gunther, 1939; Shishodia (1991) 报道了分布于印度的 S. abbreviatus Shishodia, 1991; Blackith (1992) 将 S. carli celebensis Gunther, 1937 及 S. frustorferi Gunther, 1937 作为 S. ophthalmicus Bolivar, 1887 的同物异 名;郑哲民(1993)报道了分布于福建的 S. fujianensis Zheng, 1993; 印象初(1996)将 S. carli Bolivar, 1909 作为 S. ophthalmicus Bolivar, 1887 的 同物异名;郑哲民(1998)报道了分布于峨眉山的 S. emeiensis Zheng, 1998 和分布于云南的 S. orthonotus Zheng, 1998; 郑哲民和蒋国芳(1998)报 道了分布于广西的 S. guangxiensis Zheng et Jiang, 1998;郑哲民和蒋国芳(2003)报道了分布于广西的

S. spicupennis Zheng et Jiang, 2003;郑哲民和谢令德(2004)报道了分布于广东的 S. heishidingensis Zheng et Xie, 2004;郑哲民(2005)在系统研究中国的狭顶蚱属时,报道了分布于西藏的 S. nigritibis Zheng, 2005、分布于广西的 S. longipennis Zheng et Jiang, 2005、分布于云南的 S. longinota Zheng, 2005;邓维安等(2007)报道了分布于广西的 S. guposhanensis Deng et al., 2007,至此狭顶蚱属共计有 27 种,均分布于东洋区。

2009 年作者等在整理西南林业大学"滇南边境地带昆虫资源调查研究"所采的蚱总科标本时,发现了狭顶蚱属 1 新种,现将分布于中国的狭顶蚱属 11 种作一系统报道。新种的模式标本保存于陕西师范大学动物研究所标本室及西南林业大学博物馆。

狭顶蚱属 Systolederus Bolivar, 1887

Systolederus Bolivar, 1887, Ann. Soc. Ent. Belg., 31:

194; Kirby, 1914, Fauna Brit. Indian Orth. Tetrig., 30; Gunther, 1939, Revision der Acrydiinae (Orthoptera), III, 160; Jiang and Zheng, 1998, Grasshoppers and Locusts from Guangxi, 302; Liang and Zheng, 1998, Fauna Sinica, Insecta vol. 12, Tetrigoidea, 98; Zheng, 2005, Entomotaxonomia, 27 (2): 81; Zheng, 2005, Fauna of Tetrigoidea from Western China, 115; Deng, Zheng and Wei, 2007, Fauna of Tetrigoidea from Yunnan and Guangxi, 111–112.

Type species: Systolederus haani Bolivar, 1887.

体小型,头及复眼突出于前胸背板之上。头顶极狭,复眼接近,颜面倾斜,颜面隆起在两触角之间弧形突出。触角丝状,着生于复眼下缘之下或之间。复眼突出,高出于前胸背板之上或与前胸背板平;侧单眼位于复眼前缘中部略下处。前胸背板背面平,前缘平直,中隆线明显,侧隆线在沟前区平行;后突长锥形,到达或超过后足股节顶端;前胸背板侧片具1~2个突起,后角顶近平截。前翅卵形;后翅发达,到达或超过后突的顶端。后足跗节第1与第3节等长。

中国狭顶蚱属分种检索表

- 1(4) 前胸背板后突短缩,不到达或仅到达后足股节顶端
- 2(3) 头顶前缘平,侧缘近平行; 触角着生于复眼下缘之下; 侧单眼位于复眼下缘之间; 后突到达后足股节膝部; 后翅略超过后突顶端; 雌性下生殖板长大于宽; 腹部腹板黑色。分布于西藏(墨脱) ········ 1. 黑**E狭顶蚱** Systolederus nigritibia Zheng Systolederus nigritibia Zheng, 2005, Fauna Tetrigoidea from Western China, 110 111.
- 4(1) 前胸背板后突超过后足股节顶端
- 5(8) 前胸背板侧观上缘波状或在肩部前波状

- 8(5) 前胸背板侧观上缘平直
- 9(12) 触角着生于复眼下缘之间

- 12(9) 触角着生于复眼下缘之下
- 13(14) 肩角圆弧形;前翅顶尖;中足股节宽与前翅等宽;后足胫节黑色,上具2淡色环。分布于广西(天峨)

- Systolederus spicupennis Zheng et Jiang, 2003, Entomotaxonomia, 25(2): 79. 14(13) 肩角钝角形;前翅顶尖圆或圆形;中足股节宽于或狭于前翅宽 15(16) 前胸背板后突到达后足胫节顶端;中足股节狭于前翅宽,下缘平直;后足胫节黑褐色,中部具1淡色环。分布于广西(田 Systolederus longipennis Zheng et Jiang, 2005, Entomotaxonomia, 27(2): 86 -87. 16(15) 前胸背板后突到达后足胫节中部或近顶端 2/3 处 17(20) 中足股节明显宽于前翅宽; 前胸背板后突到达后足胫节的中部; 后足股节下侧外面黑色 ······9. 直背狭顶蚱 S. orthonotus Zheng Systolederus orthonotus Zheng, 1998, Acta Zootaxonomica Sinica, 23(2): 166 - 189. 19(18) 前翅顶狭圆; 后翅超过前胸背板后突的顶端; 中足股节下缘平直; 后足胫节黑色, 基部和中部具 1 淡色环。分布于广西 Systolederus guposhanensis Deng, Zheng and Wei, 2007, Fauna Tetrigoidea from Yunnan and Guangxi, 119-110. 20(17) 中足股节下缘平直,与前翅等宽;前胸背板后突到达后足胫节 2/3 处;后足股节下侧外面黄褐色;后足胫节褐色,具2黑 Systolederus heishidingensis Zheng et Xie, 2004, J. Shaanxi Normal Univ., 32(3): 83. Key to the species of Systolederus from China 1(4) Hind process of pronotum shorter, not reaching or just reaching apex of hind femur. 2(3) Anterior margin of vertex straight, lateral margins nearly parallel; antennae inserted under the lower margin of eyes; lateral ocelli placed between the lower margin of eyes; hind process reaching knee of hind femur; hind wing slightly beyond the top of hind process; length of subgenital plate of female longer than its width; sternum of abdomen black. Distributed in Xizang (Motuo) 3(2)Anterior margin of vertex sharp, lateral margin of vertex attenuated forward; antennae inserted just under the lower margin of eyes; lateral ocelli placed lower one third anterior margin of eyes; hind process reaching the top of hind femur; hind wings reaching middle of hind tibia; width of subgenital plate of female longer than its length; sternum of abdomen not black. Distributed in Yunnan 4(1) Hind process of pronotum surpassing apex of hind femur. 5(8) Upper margin of pronotum undulated or undulated before humerus in profile. 6(7) Pronotum with a pair of short longitudinal keels between humerus; anterior margin straight, midkeel distinctly complete, upper margin before humerus undulated in profile; width of midfemur 2.3 times as long as width of tegmina. Distributed in Guangxi (Shangsi, 7(6) Pronotum without a pair of short longitudinal keels between humerus; anterior margin slightly concave in middle, midkeel indistinct in prozona, upper margin of pronotum undulated in profile; width of midfemur equal to width of tegmina. Distributed in Sichuan (Emei Mountain) 4. S. emeiensis Zheng Upper margin of pronotum straight in profile. 8(5) 9(12) Antennae inserted the lower margin of eyes. 10(11) Hind process of pronotum reaching basal one third of hind tibia, length of pronotum 4.75 times as long as the portion surpassing apex of hind femur; width of midfemur longer than width of tegmina; hind tibia yellow brown, with a dark ring in middle. Distributed in Fujian (Jiangle), Yunnan (Lancang), Guangxi (Shangsi, Rongshui, Tian'e, Tianlin, Jinxiu, Longzhou, Jingxi, Fangcheng,

12(9) Antennae inserted below the lower margin of eyes.

- 14(13) Humeral angle obtusely angular; tip of tegmina narrow rounded or rounded; width of midfemur longer or shorter than width of tegmina.
- 16(15) Hind process reaching the middle or two thirds of hind tibia.
- 17(20) Width of midfemur longer than width of tegmina; hind process of pronotum reaching middle of hind tibia; lower outside of hind femur black.
- - Width of milfornus agual to width of teaming, hind process of proportion reaching two thirds of hind tibia, lower outside of hind famous
- 20(17) Width of midfemur equal to width of tegmina; hind process of pronotum reaching two thirds of hind tibia; lower outside of hind femur not black; hind tibia brown, with two dark rings in middle. Distributed in Guangdong (Fengkai)

新种记述

短背狭顶蚱, 新种 Systokederus brachunotus sp. nov. (图 1~3)

雌性:体小型,较粗短。头部突出于前胸背板之上,头顶极狭,侧缘向前渐尖,具中隆线,前缘尖而不突出于复眼之前,使两复眼在前端几相接;侧面观颜面隆起在触角之间弧形突出;颜面隆起在触角之间的宽度与触角基节近等宽。触角丝状,着生于复眼下缘之下,触角窝上缘与复眼下缘处于同一水平线上。复眼圆球形,突出;侧单眼位于复眼前缘下1/3处。前胸背板较宽短,前缘平直,中隆线全长明显,侧面观背板上缘平直;沟前区侧隆线短,平行;肩角钝角形;后突楔状,刚到达后足股节顶端;前胸背板侧片后缘具2凹陷,后角向下,顶平截。前翅长卵形,顶狭圆;后翅发达,超过后突顶端而到达后足胫节中部。前、中足股节上、下缘平直,中足股节的宽度与前翅近等宽;后足股节粗壮,上、下侧中隆线具细齿,膝前齿直角形,膝

齿较尖;后足跗节第1与第3节近等长,第1跗节下之3垫近等长。产卵瓣粗短,上瓣之长为宽的3倍,上、下瓣均具细齿。下生殖板宽大于长,后缘中央三角形突出,腹面端部中央具纵沟。

体暗褐色;后翅黑色;前、中足胫节上具2黑环,第1跗节及第2跗节端部黑色;后足股节下侧外面黑色;后足胫节黑色,中部具1淡色环,第2跗节及第3跗节端部黑色。

雄性: 未知。

体长: ♀9~9.5 mm; 前胸背板长: ♀12.5~ 13 mm; 后足股节长: ♀5~5.5 mm。

正模♀,云南: 勐腊(关累勐远),860 m,21°38′N,101°25′E,2009-VII-31,欧晓红采;副模1♀,同正模。

该新种近似于短缩狭顶蚱 Systolederus abbreviatus Shishodia, 1991, 主要区别见表 1。

词源:新种名以希腊字"brachy"及"nota"为名。

表 1 短背狭顶蚱与短缩狭顶蚱之主要区别

Table 1 Differences between Systolederus brachynotus sp. nov. and S. abbreviatus

| 特征 Character | 短缩狭顶蚱 S. abbreviatus | 短背狭顶蚱 S. brachynotus sp. nov. |
|-----------------|-------------------------|----------------------------------|
| 前胸背板后突到达后足胫节 | 中部后 | 顶端 |
| 前胸背板侧片具 | 1 个突起 | 2个突起 |
| 后翅 | 到达后突顶端 | 超过后突顶端 |
| 后足第1 跗节下之 | 第3垫大于第1、2垫 | 3 垫近等长 |
| 后足胫节 | 暗褐色,基部具淡黄色环 | 黑色,中部具1淡色环 |
| 虫体大小 | 体较小,体长♀7 mm | 体较大,体长 ♀9~9.5 mm |

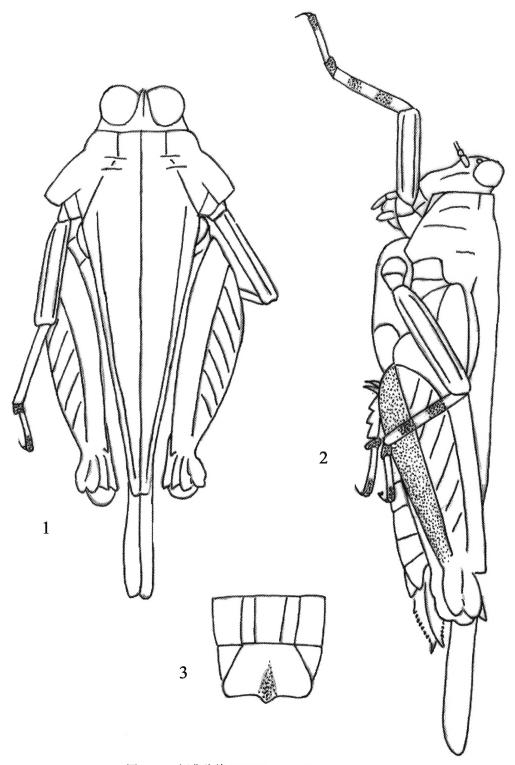


图 1~3 短背狭蚱 Systolederus brachynotus sp. nov.

Figs. 1-3 Systolederus brachynotus sp. nov.

1. 整体背面 Body, dorsal view, ♀; 2. 整体侧面 Body, lateral view, ♀; 3. 雌性下生殖板 Subgenital plate, ♀.

参考文献 (References)

- Blackith RE, 1992. The Terigidae (Insecta: Orthoptera) of South East Asia. JAPAGA, 10248.
- Bolivar I, 1887. Essai sur les Acridieas de la Tribu des Tetrigidae. *Ann. Soc. Ent. Belg.*, 31: 172 313.
- Bolivar I, 1909. Nourelles especes d'Acridiens de Musee de Geneve. Msftif. Bol. Soc. Espan., 9: 392 -408.
- Bolivar I, 1892. Description d'une espece nouvelle d'Orthoptera du Perou. Bull. Soc. Ent. France, 1892; 215.
- Brunner von Wattewyl, 1893. Revision du systeme des Orthoptera et description des especes rapportees par M. Leonardo Fea de Birmanie. Annali dei Museo Civico di Storia naturale Giacomo Doria di Genova, 33 (ser. 2,14); 1-230.
- Deng WA, Zheng ZM, Wei SZ, 2007. Fauna of Tetrigoidea from Yunnan and Guangxi. Guangxi Science and Technology Press, Nanning. 458 pp. [邓维安,郑哲民,韦仕珍, 2007. 滇桂地区蚱总科动物志. 南宁:广西科学技术出版社. 458 页]
- Gunther K, 1936. Phasmoiden und Acridiinen (Orthoptera) von Hollandisch New Guinea hauptsachlich aus den Ausbeutea der Herren Docters van Leeuwen (1926). Van Heurn (1920). P. N. Van Kampen und K. Gjellerup (1910). Nova Guinea, Zoologie, Leiden, 17: 323 – 352.
- Gunther K, 1937a. Orthoptera Celebica samsiniana. Fam. Acrididae, subfam. Acrydiinae. Treubia, 16: 165 – 195.
- Gunther K, 1937b. Acrydiinae (Orthoptera, Acrididae) von Java, den Kleiinen Sunda-Inseln und Nerdaustralien. *Rev. Suisse Zool.*, 44: 121 140.
- Gunther K, 1939. Revision der Acrydiinae (Orthoptera), III. Sectio Amorphopi (Metrodorae Bol. 1887, aut.). Abh. Ber. Staat. Mus. Tierk. Volkerk. Dresden, Bd. 20, Reihe A. Zool. N. F. Hf. 1:16 -335.
- Hancock JL, 1907. Studies of Tetriginae (Orthoptera) in the Oxford University Museum. Transactions of the Entomological Society of London, 1907: 213 – 244.
- Hancock JL, 1910. Notes on Ceylonese Tetriginae (Orthoptera) with descriptions of some new species. *Spolia Zeylanica*, 6: 140 149.
- Hancock JL, 1908. Further studies of the Tetrigidae (Orthoptera) in the Oxford University Museum. Transactions of the Entomological Society of London, 1908: 387 – 426.
- Jiang GF, Zheng ZM, 1998. Grasshoppers and Locusts from Guangxi.

- Guangxi Normal University Press, Guilin. 390 pp. [蒋国芳,郑哲民, 1998. 广西蝗虫. 桂林: 广西师范大学出版社. 390 页]
- Kirby WF, 1910. A Synonymic Catalogue of the Orthoptera. Vol. 3.
 Orthoptera Saltatoria. Part 2. Locustidae vel Acrididae. Longmans and Co. for British Museum (Natural History), London. 647 pp.
- Kirby WF, 1914. Fauna of British India, including Ceylon and Burma.
 Orthoptera, Acrididae. Taylor and Francis, London. 276 pp.
- Liang GQ, Zheng ZM, 1998. Fauna Sinica, Insecta. Vol. 12, Orthoptera, Tetrigoidea. Science Press, Beijing. 278 pp. [梁铬球,郑哲民,1998. 中国动物志,昆虫纲,第12卷,直翅目,蚱总科. 北京:科学出版社. 278 页]
- Shishodia M, 1991. Taxonomy and zoogeography of the Tetrigidae (Orthoptera: Tetrigoidea) of North Eastern India. *Rec. Zool. Surv. India. Occ. Paper*, 140: 1-204.
- Yin XC, Shi JP, Yin Z, 1996. A Synonymic Catalogue of Grasshoppers and Their Allies of the World. Orthoptera: Caelifera. China Forestry Publishing House, Beijing. 1266 pp.
- Zheng ZM, 1993. Orthoptera: Tetrigoidea. Animals of Longqi Mountain. China Forestry Publishing House, Beijing. 70 83. [郑哲民, 1993. 直翅目: 蚱总科(菱蝗总科). 龙栖山动物. 北京: 中国林业出版社. 70 83]
- Zheng ZM, 1998. A study of Tetrigoidea from Xishuangbanna Region (Orthoptera). Acta Zootaxonomica Sinica, 23(2):161-184. [郑哲民, 1998. 西双版纳地区蚱总科的研究(直翅目). 动物分类学报, 23(2):161-184]
- Zheng ZM, 2005a. A systematic study on the genus Systolederus (Orthoptera: Tetrigoidea: Metrodoridae) from China. Entomotaxonomia, 27(2): 81-88. [郑哲民, 2005a. 中国狭顶蚱属分类研究(直翅目: 蚱总科: 短翼蚱科). 昆虫分类学报, 27(2): 81-88]
- Zheng ZM, 2005b. Fauna of Tetrigoidea from Western China. Science Press, Beijing. 501 pp. [郑哲民, 2005b. 中国西部蚱总科志. 北京: 科学出版社. 501 页]
- Zheng ZM, Jiang GF, 2003. Three new species of Metrodoridae from Guangxi. *Entomotaxonomia*, 25(2): 79-84. [郑哲民, 蒋国芳, 2003. 广西龙滩自然保护区短翼蚱科三新种(直翅目: 蚱总科). 昆虫分类学报, 25(2): 79-84]
- Zheng ZM, Xie LD, 2004. Six new species of Tetrigoidea from Guangdong. Journal of Shaanxi Normal University, 32(2): 81 86. [郑哲民,谢令德. 2004. 广东省蚱总科六新种记述. 陕西师范大学学报,32(2):81-86]

(责任编辑: 袁德成)

Appendix: Brief descriptions of new taxa

Systolederus brachynotus sp. nov. (Figs. 1-3)

This new species is allied to *Systolederus abbreviatus* Shishodia, 1991, but differs in: 1) top of hind process reaching apex of hind femur; 2) lateral lobe of pronotum with two projections; 3) hind wing surpassing the top of hind process; 4) three pulvilli of the first segment of hind tarsus equal in length; 5) hind tibia black; 6) size larger, length of body 9 – 9. 5 mm.

Length of body: 9-9.5 mm; length of pronotum: 912.5-13 mm; length of hind femur: 95-5.5 mm. Holotype 9, Yunnan: Mengla, 860 m, $21^{\circ}38'N$, $101^{\circ}25'E$; paratype 19, same data as holotype, collected by Ou Xiao-Hong.

Etymology: The specific name is derived from the Greek "brachy" and "nota".